

# Theory and Action for Health Promotion: Illustrations from the North Karelia Project

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**Abstract:** The North Karelia Project in Finland illustrates the fundamental goals of health promotion. Specific activities of the project serve as examples of how concepts from the social and behavioral sciences can be applied to achieve estimated reductions in

predicted risk of disease. The results in North Karelia are not conclusive, but they are encouraging, and the investigation conducted there is an essential reference for future research in health promotion and disease prevention. (*Am J Public Health* 1982; 72:43-50.)

## Introduction

The prevention of chronic diseases has emerged as a major focus of modern public health.<sup>1,2</sup> Present knowledge indicates that adoption of healthy life-styles and environments are key elements of such preventive action. "Health promotion" is the effort designed to reduce unhealthy behaviors, improve preventive services, and create a better social and physical environment.<sup>3,4</sup> The obvious potential for prevention of several major chronic diseases has led to many campaigns and actions. Disappointment with the frequently marginal or unsatisfactory results has increased demand for a sounder theoretical basis for these health promotion activities. There is also a need for more communication between those involved with action and experts in the behavioral sciences. We believe that "nothing is as practical as a good theory,"<sup>5</sup> and that a comprehensive framework of theorization is urgently needed to guide research and development activities in this important field.

The North Karelia Project<sup>6</sup> is a comprehensive community program for health promotion in North Karelia, a rural county with 180,000 inhabitants in Eastern Finland. Most of the inhabitants of the region reside in very small villages. The largest population center, Joensuu, is a small town. Chief occupations in North Karelia are farming and forestry. The Project was started in 1972 after a petition by the local population requesting the government to do something to

reduce high cardiovascular disease (CVD) rates in the area.<sup>7</sup> The aims of the program have been to improve detection and control of hypertension, to reduce smoking, and to promote diets lower in saturated fat and higher in vegetables and low-fat products. The following sections provide conceptual and theoretical analyses of these goals with reference to activities of the North Karelia Project.

Activities of the Project were based on practical ideas of how to improve services and change behaviors and environments. However, most of the sub-programs that were conducted demonstrate the fundamental goals of health promotion and illustrate theoretical principles in action. This paper is not intended as a description of the North Karelia Project and its results; a comprehensive report has been published by the World Health Organization.<sup>7</sup> The aim here is to present a framework of general goals and theoretical principles for health promotion, and to illustrate their application with examples from the North Karelia Project. A chronological listing of selected publications in English is included as an Appendix to this report.

## Program Objectives

There are several general models that may be applied to the design of health promotion programs.<sup>8-11</sup> The general framework presented here is compatible with these models, but our schemata emphasizes planning and analysis based on the classification of objectives:

- *Improved preventive services* to identify persons at abnormal risk of disease and provide appropriate medical attention;
- *Information* to educate people about their health and how it can be maintained;
- *Persuasion* to motivate people to take healthy action;
- *Training* to increase skills of self-control, environmental management, and social action;

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- *Community organization* to create social support and power for social action;
- *Environmental change* to create opportunity for healthy actions and improve various unfavorable conditions.

The following sections provide conceptual and theoretical analyses of these goals with reference to activities of the North Karelia Project.

### Improved Preventive Services

Provision of preventive services is a key function of any health care system. Detection and treatment of hypertension as a means of preventing cardiovascular disease is one of the best examples of this kind of activity.<sup>12</sup> Large-scale detection and control of hypertension has proven to be difficult. The greatest problems are accomplishing widespread blood pressure screening and inducing adequate adherence to indicated treatment and follow-up.<sup>13,14</sup>

The North Karelia Project approached these problems with the notion that it would be more feasible to reorganize preventive services than to induce the population to use existing services more effectively. The Finnish health care system provides primary care through community health centers serving and largely governed by local populations. Only a small minority receive routine care from private physicians. Sponsored by the National Board of Health, the North Karelia Project worked together with the County Health Administration and local municipal authorities to change the way in which hypertension was detected and treated.<sup>15</sup>

The central features of this reorganization were a sharp increase in the responsibility assigned to the local public health nurse and the establishment of new offices at each of the 12 community health centers in North Karelia. To provide the data base for the new activities a county-wide hypertension register was established. Screening for hypertension was integrated into routine contacts with the health center and also provided through mass screening programs at county fairs and village centers. Public health nurses were trained to refer those with elevated blood pressure to a physician for definite diagnosis and for possible initiation of appropriate pharmacological regimens. Then the public health nurse was given responsibility for long-term surveillance of those patients' blood pressure through regular follow-up, including personal instructions on adherence to the treatment and on necessary modification of dietary and other habits. The public health nurses paid special attention to individuals who seemed to experience difficulty in bringing their blood pressure under control. Meanwhile, media and community organizations were spreading the message that control of hypertension is an important goal and that individuals should cooperate with the new activities of the public health nurses. Regular mailings of highly salient reminders of follow-up visits were sent to all the persons recorded in the hypertension register maintained by the public health nurse.

At the baseline survey in 1972, the proportion of male hypertensives (systolic  $\geq 175$  mm Hg or diastolic  $\geq 100$  mm

Hg) receiving anti-hypertensive drug treatment was about 13 per cent in both Karelia and a neighboring province which was used as a reference for comparison. In the 1977 survey conducted after five years of reorganized preventive health services in North Karelia, the proportion of male hypertensives under appropriate drug treatment had increased to 45 per cent.<sup>16</sup> In the neighboring province, where services for hypertension detection and treatment were beginning to be modeled after the new procedures in North Karelia, the corresponding change was from 14 per cent to 33 per cent. The proportion of hypertensives dropped sharply among North Karelian middle-aged men (30–64 years) while it increased slightly in the reference area. These findings are more completely described elsewhere.<sup>7</sup>

### Information

Cooperation with any program or service designed to prevent disease depends on the extent to which the community is informed about the purposes and importance of the program. Thus a major objective of health promotion is to educate people about their health and how it can be maintained. Examples of this kind of activity are informing the public that cardiovascular disease may be prevented through appropriate measures and explaining the purpose and nature of these measures. However it is not always easy to adequately communicate new and somewhat complex ideas in a large population which is subject to information, sometimes conflicting, from many sources.

The design of effective information campaigns can be facilitated by the application of practical principles derived from communication research and theory. For example, research shows that mass media, especially news, powerfully influence what people talk and think about and how they judge the importance of various social problems or issues.<sup>17</sup> Theory suggests that new ideas often must travel through several steps of interpersonal communication to reach the general population.<sup>18</sup> The messages must be simple and frequently repeated if they are to be comprehended and retained.<sup>19</sup>

The North Karelia Project offers several illustrations of the implementation of these principles. Project staff were able to attract intense and frequent attention from the news media in the region, especially from newspapers and radio. Between 1972 and 1977, a total of 1,509 articles related to cardiovascular risk factors, their management, and the program activities were printed in the local newspapers. This was three times as many articles as appeared in the reference area papers. During that same period, over one-half million bulletins, leaflets, posters, signs, stickers and other educational materials were distributed. To stimulate further interpersonal communication, many different groups and organizations were contacted and asked to distribute materials in their everyday work or to cooperate in organizing health education meetings. A total of 251 general meetings, reaching over 20,000 community members, were held. The community groups and organizations that were involved in these activities included worksites, schools, shops and places of commerce, clubs, and voluntary organizations.

Information about the program and its aims was disseminated rapidly.<sup>7</sup> According to population surveys, over a five-year period understanding of the risk factors for cardiovascular disease increased in both North Karelia and the reference area, but somewhat more in North Karelia. There were sharp baseline differences in knowledge between different educational and occupational groups, but members of all the different groups in North Karelia showed 10 to 15 per cent increases in the proportion of correct responses to survey questions designed to measure knowledge, awareness, and understanding of cardiovascular disease risk factors. However, there were no significant differences between such changes in North Karelia and in the reference area, probably because of increasing attention from the national media serving both countries.

### Persuasion

It is well known that behavior cannot always be changed simply by providing information.<sup>20</sup> People need to be persuaded to act on the information that they have been given, to be convinced that new ideas are socially acceptable, that new foods are tasty, and that new life-styles are enjoyable. Thus, in order to promote health effectively, we must accept responsibility for shaping attitudes and behavior in what we believe to be the proper direction.

Much has been written concerning the ethical issues that arise in persuasive health promotion.<sup>21</sup> Debate has been centered on the right of public health activists to interfere with existing processes and on the question of whether individuals or groups should be held responsible for their own health.<sup>23</sup> The promotion of change in life-style or environment is a natural outgrowth of an improved understanding of the epidemiology of disease and injury. Given the many forces which already exert persuasive influences on individuals in our society, those concerned with public health should not shirk the duty of prudent advocacy. To do otherwise is to leave attitudes and behaviors to be shaped by the short-term contingencies of our market economy.

We are products of our environment, but we can change our environment through concerted action. Thus, we may be held collectively responsible for public health, and we must learn to use our political system more effectively to create a favorable environment for all segments of society if we hope to limit the current burden of illness. Efforts to persuade those whose options are limited and whose values are distorted by economic and social problems to accept responsibility for their own health may be futile. Yet many public health activists seeking basic social or economic change are acutely aware of the difficulty of winning popular support for their views and recommendations.

There is a broad accumulation of research and theory concerning the social psychology of persuasion.<sup>24</sup> Three general approaches can be described:

- The "communication" approach focuses on basic parameters of communication; it emphasizes the credibility of the source of a persuasive message and how the message form or content influences cognitive processes in a human receiver.

- The "affective" approach to persuasion concentrates on creating emotional associations.

- The "behavioral" approach centers on achieving a minor behavioral commitment with the expectation that attitudes and beliefs will follow.<sup>25</sup> Although attitude change was not a stated objective of the program in North Karelia, several basic principles were taken into account when different activities were conducted.

In communicating new ideas, Project staff arranged for their messages to be disseminated from many different sources—deliberately seeking a mix which would maximize perceived credibility. Explicit endorsements were obtained from prestigious institutions such as the World Health Organization. In addition, opinion leaders from both formal and informal groups were involved.<sup>26</sup> These individuals were targets of especially intense persuasive communication from respected medical and other experts and were then encouraged to spread and support the new ideas in the community. The physicians and public health nurses were an important part of the communication system. The surveys showed that during the five-year period both of these professional groups distributed more information and were much more involved in active contacts with decision-makers in various community organizations in North Karelia than in the reference area: eight per cent of the decision-makers in the reference area and over 20 per cent in North Karelia had been explicitly advised by a public health nurse to change dietary habits.<sup>7</sup>

The content of the messages was carefully constructed to anticipate and suppress counter-arguments. Since many local people, engaged in active occupations, strongly believed that a diet high in meat fat was necessary for hard-working individuals, messages aimed at decreasing fat intake often pointed out that there were hard-working vegetarian lumberjacks and that one of the most famous distance runners from Finland, H. Kolehmainen, was a vegetarian. Reference was also repeatedly made to the fact that the recommended low-fat diet was more "traditional" for North Karelia than the present high-fat diet. Comparisons of changes in dietary habits in North Karelia and the reference area revealed that sizable and significantly greater reductions were observed in reported intake of fat in North Karelia than in the reference area.<sup>7</sup>

Realizing that any fear-provoking messages must be accompanied by clear and attainable recommendations for reducing that fear, the Project was careful with the "high-risk" concept. People with elevated blood pressure or serum cholesterol were told that their condition was potentially serious, but that simple steps could be taken to alleviate the problem. Practical dietary advice was given, and the high-risk individuals were systematically reassured at the follow-up. No distinction was made between "pathological" and "safe" levels of risk, and public health nurses and educators repeatedly pointed out that the general risk in the population was high—that everyone had reason for change. The surveys showed that the behavior changes were similar among population groups with varied initial risk levels, and that there was no tendency toward increased anxiety or psychosomatic complaints as a result of the efforts to identify and influence those with exceptionally elevated risk factors.<sup>27</sup>

The "emotional" approach to persuasion relies upon emotional association rather than argument. There was conscious effort by the Project to associate the goals of the project with the pride and provincial identity of the population. People were urged to participate and to make changes not only for themselves, but for "North Karelia." For instance, signs reading "Do not smoke here—we are in the North Karelia Project" were everywhere and fostered a kind of local patriotism.

The "behavioral" approach to persuasion also does not rely on rational argument. The Project staff became acquainted with hundreds of local influential people with whom problems of varying nature were discussed. Almost everyone directly contacted was asked to make at least some minor behavioral commitment in favor of the Project. Thousands of citizens cooperated with small actions such as the display of stickers and posters. Such actions undoubtedly influenced the involved individuals to take a more favorable view of the Project and its recommendations.

### Training

Information and persuasion are often sufficient to promote simple behavioral change such as choices among similar, equally accessible consumer products like butter and margarine. But when complex changes in habit or lifestyle are recommended, it is not always easy to translate intention into action. For example, adding of more vegetables to the family diet may require the homemaker to change long-standing patterns of shopping and preparation. Even when the family is persuaded that such changes should be made, they may find the transition difficult. The cessation of cigarette smoking provides another example of the difficulty of some actions.<sup>28</sup>

There is a fairly well-articulated body of research and theorization that can guide the creation of training programs to facilitate the learning of new habits and skills.<sup>20</sup> Four basic steps appear necessary for optimal training: 1) modeling or demonstration of new responses and action patterns; 2) guided and increasingly independent practice in those thoughts and behaviors; 3) feedback concerning the appropriateness or accuracy of responses; 4) reinforcement in the form of support and encouragement that can be gradually withdrawn if the new habit or skill leads to naturally reinforcing consequences. Illustrations of these steps can be drawn from the training course in dietary change that was conducted in the North Karelia Project.

Especially in rural Finland, most women occupy the traditional role of homemaker and in Eastern Finland many women belong to a local housewives' association known as the "Martha" Organization. In order to teach new cooking and food preparation skills and thus to change family diet, the North Karelia Project worked in cooperation with Martha leaders. A major practical activity here was the introduction of "Parties for a Long Life." Housewives of the village gathered in the afternoon to learn how to cook a healthier type of meal with actual demonstration and participation. For example, women were shown how potatoes and other roots can replace meat fat in soups, while still producing acceptable appearance and consistency. Guidance and feed-

back was presented by the course leaders as the new skills were practiced. The rest of the families were invited in the evening to enjoy the meal with them, creating good opportunities for natural reinforcement. A pleasant social program was then organized in conjunction with the meal. To increase the perception of natural incentives, participants were shown that the cost of the meal was less than that of their traditional way of preparing those dishes.

Three hundred forty-four of these sessions were held with approximately 15,000 participants. At the 1976 follow-up survey, 9 per cent of the men and 18 per cent of the women in North Karelia had been involved at least once. Since then, the "Party for a Long Life" has become a part of the activities of the Martha Association on a national basis. A variety of other forms of training were conducted, including smoking cessation classes and special coronary rehabilitation groups. These are more completely described elsewhere.<sup>7</sup>

### Community Organization

No matter how effectively a person has been educated, persuaded, and trained to make healthy changes in behavior, it is unlikely that the change will be maintained unless it is reinforced by the social environment. One of the central ideas, and probably the most important concept, of the Project in North Karelia was to involve the whole community in a broad effort to prevent cardiovascular diseases. A variety of supportive activities were organized. They provide good examples of how members of the community can be trained and organized to reinforce the changes that were being recommended.

Support within the family was created by involving the complete family unit wherever possible, e.g., inviting the husbands and children to share in the results of cooking classes, or enlisting the support of wives in their husbands' adherence to smoking cessation courses, anti-hypertensive regimens, or coronary rehabilitation courses. Wives of smokers were informed about how to deal with nervousness on the part of a recent ex-smoker and how to be patient and reinforcing as their husband learned to live without cigarettes.

Special efforts were made to create general support within the community, based upon the well known sociological phenomenon of natural leadership in social networks of the community.<sup>29</sup> The Project staff, jointly with the Heart Association, identified local leaders by informally interviewing shopkeepers and other knowledgeable persons. They inquired about individuals who regularly have influential contacts with a large number of practical activities. Those who agreed to participate in the "lay leaders" program were invited to a weekend program of training which included basic information about risk factors for cardiovascular disease and suggestions on how to encourage positive changes in day-to-day contacts with people. Participants in these brief courses were also educated about the new activities that were being conducted by the health centers and given advice on how to encourage cooperation among their families, friends, and acquaintances. Finally, these natural leaders were told that they were models for the rest of the

community and urged to be positive examples by following various recommendations themselves. This activity was started toward the end of the five-year period and was continued after that. Over a four-year period more than 1,000 of the most influential members of the local communities in North Karelia were involved in this local organizational work.

### Environmental Change

The environment is often a determining influence on behavior and may be a direct influence on health. Thus a very important goal of health promotion is the achievement of appropriate environmental changes. Community organization is an important element of such change. Both governmental and economic organizations tend to be most responsive to organized, collective actions.<sup>30,31</sup> Various concepts and theories of social influence and change suggest both direct influence and advocacy among decision-makers<sup>32</sup> and indirect influence through the organization of "grass-roots" support and action.<sup>33</sup>

The major environmental goals of the North Karelia Project were to increase the availability of low-fat foodstuffs and to introduce restrictions on smoking in many indoor spaces such as restaurants. Direct advocacy of those goals was accomplished through individual meetings with crucial individuals. For example, shop proprietors were individually asked to display signs which prohibited smoking in their shops. Management of a local sausage factory was particularly interested in cardiovascular disease prevention after two managers suffered heart attacks. The Project staff took advantage of their offer of cooperation by helping to create a new sausage product which replaced some meat and fat with mushrooms. Especially important was the assistance of the main county dairy in promoting the consumption of low-fat dairy products. Through this cooperation some entirely new products were created.

Indirect influence was organized out of the many contacts between North Karelia Project staff and influential members of the community. The weekend courses for natural community leaders involved discussions of how useful environmental changes could be accomplished, and participants in these meetings were asked to accomplish specific objectives. For example, local restaurants and shops were visited by local leaders, who asked the proprietors to offer additions to the food products on sale, to prohibit or restrict smoking, and to remove tobacco advertisements.

A particularly powerful form of indirect influence on environmental change is the creation of consumer demand for new products or services. The educational and persuasive activities of the North Karelia Project stimulated increased demand for low-fat food products. When a survey showed that more than half of the population of North Karelia would buy low-fat milk if it were available, that fact was persuasively communicated to those responsible for the production and distribution of dairy products. In response, the dairy agreed to produce nonfat milk and other new products and joined with the Project in promoting those new products. Dairy sales were sustained without increasing costs.

The proportion of people in North Karelia who regularly drink high-fat milk dropped by almost 40 per cent. However, this development took place in the whole country, so that in the reference area similar but smaller shifts away from high-fat milk consumption were observed. Other environmental changes that were stimulated by the North Karelia Project also spread throughout Finland. A special soft butter (mixed butter and vegetable oil), introduced by the Project in connection with the "Parties for Long Life," was made available to all Finns as a result of legislative actions in 1978. The voluntary restraint on tobacco promotion that was evoked in North Karelia became a national law in 1977 with the passage of national legislation prohibiting the promotion of tobacco products.

### Summary of Five-Year Results

Selected examples of the results achieved in North Karelia have been mentioned throughout this paper and full reports of intermediate and primary outcomes are available elsewhere.<sup>7</sup> Only a brief summary of the risk factor changes that were observed will be presented here. Because of the tendency for longitudinal study of cohorts to exaggerate estimates of change in the whole community,<sup>34</sup> the project evaluation relied upon independent surveys of population samples drawn from the national population register. In 1972, a baseline survey was conducted in which a total of 5,115 men and women between the ages of 25 and 59 were sampled in North Karelia and 7,348 were sampled in the reference area (neighboring county). Excluding those who had died or migrated out of the area, well over 90 per cent of those asked to respond were studied. In 1977, a five-year follow-up survey was made in which 4,728 new persons were sampled from North Karelia and 6,776 were sampled in the reference area. Response rates were again around 90 per cent. Both of these surveys included similarly structured questionnaires and direct risk factor measurement using standardized techniques. Smoking was measured by a set of questions; the reported answers were validated at the terminal survey by analyzing the serum thiocyanate levels of a random half of subjects. Casual blood pressure was measured in sitting position using standardized techniques; the fifth phase was used as diastolic blood pressure. Serum cholesterol assessments were made in one central laboratory standardized against the WHO reference laboratory in Atlanta. An overall risk score was computed for each subject using a multiple logistic function based on their smoking, serum cholesterol and systolic blood pressure values.<sup>7</sup>

Changes in risk estimates for smoking, serum cholesterol, blood pressure, and total risk are presented in Table 1, showing significant reductions in North Karelia when compared to the reference area. A more detailed discussion of the evaluation efforts of the project can be found in the WHO report.<sup>7</sup>

Five years is obviously not a long enough period of time to reduce cardiovascular morbidity and mortality, but some changes have been observed.<sup>35</sup> There are good data from national records of pension disability payment and a clear

**TABLE 1—Mean Risk Factor Levels for Men and Women in North Karelia and Reference Area in 1972 and 1977**

Assessment Areas	Men	1972	1977	Change
Cholesterol	North Karelia	269.3	259.0	-10.3*
	Reference	260.4	261.2	+0.8
Cigarettes/day (total sample)	North Karelia	9.9	8.1	-1.8*
	Reference	8.9	8.1	-0.8
Systolic BP	North Karelia	147.3	143.9	-3.4*
	Reference	145.0	146.8	+1.8
Diastolic BP	North Karelia	90.8	88.6	-2.2*
	Reference	92.4	92.8	+0.4
Risk Score	North Karelia	4.1	3.4	-0.7*
	Reference	3.7	3.7	0.0
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	Women	1972	1977	
Cholesterol	North Karelia	265.3	258.2	-7.1
	Reference	259.2	255.1	-4.1
Cigarettes/day (total sample)	North Karelia	1.3	1.1	-0.2
	Reference	1.4	1.3	-0.1
Systolic BP	North Karelia	149.4	143.5	-5.9*
	Reference	144.1	145.4	+1.3
Diastolic BP	North Karelia	90.7	86.8	-3.9*
	Reference	90.0	89.5	-0.5
Risk Score	North Karelia	3.3	2.9	-0.4*
	Reference	3.0	2.9	-0.1

\*Significant difference ( $p < .01$ ) between change in North Karelia and reference area (one-tailed  $t$  test).

relative reduction in cardiovascular disease pension was observed in North Karelia as compared to the reference area.<sup>7</sup> Estimates from pension disability data already suggest that payment of over \$4 million (US) dollars in disability payments may have been avoided by the less than \$1 million expended on the Project's intervention activities.

We realize that the observation of only two statistical units (counties) and the absence of random assignment of the intervention limit the certainty of inferences that may be drawn from this study. Given the origin of the Project, randomization was clearly out of the question. However, the reference area was chosen in a "matched" way. Because the possible impact of the Project on the reference area is not taken into account, and a new medical school was opened in the reference area in 1972, the true impact of the Project may have been greater than estimated. Socioeconomic development was equivalent in both areas. Health services increased considerably. There was negligible in or out migration among citizens above the age of 30.

Because the objective was to serve the entire province of North Karelia, different components of intervention were not differentially applied within North Karelia. Thus, we cannot state secure conclusions about the unique or relative contributions of different programs, sub-programs, or channels of action. The observed changes may have been due to any one or all of the several actions toward each specific objective. Furthermore, the changes that took place in North Karelia were at least partly the result of more general international trends toward cardiovascular risk reduction which are difficult to disentangle from the specific effects of the North Karelia Project. In spite of that, a few comments

about the feasibility and coverage of different activities can be made.

The new preventive services developed gradually and required a fair amount of organizational effort and training of local personnel. Training was extensive but at times the number of participants was restricted because of conflicts with work duties or other meetings. Environmental changes were certainly effective, but their extent was limited by national legislation, other national rules, or economic realities. The extent and coverage of general anti-smoking advice certainly matched with initial expectations. Health personnel were attentive to patients' smoking, but the success of more intensive group support in smoking cessation was not great. The nutrition program resembled these experiences. General nutrition information and counseling was extensive and had wide coverage. Less developed was the system to provide intense individual nutrition counseling for the overweight or those with very high cholesterol levels. On the other hand it was felt that mass intervention to change nutrition habits was probably a better strategy in the situation where practically everybody had an elevated cholesterol level relative to world norms. The hypertension subprogram succeeded with what proved to be clear and practical programs to screen, treat, and follow the approximately 10-15 per cent of the adult population with hypertension. The reorganization of preventive services and organization of community support and action were probably the most effective aspects of the overall project.

Although the final epidemiological results concerning mortality-reducing effects of the program in North Karelia are still to be shown, the goals of health promotion were met

to the satisfaction of those who initially requested the action. The general perception of "success" had led to rapid national adoption of innovations that originated in North Karelia. For example, a major smoking cessation television program was based upon the Project experiences and methods,<sup>36</sup> and a more comprehensive risk factor reduction program on national television has now been conducted. As mentioned previously, several of the new dairy products and health service models that were developed in North Karelia are now available throughout Finland. The North Karelia Project has become popular as a practical and positive example that health promotion and control of modern chronic disease epidemics is feasible.

North Karelia is a fairly large administrative area, and Finland is a relatively small country where public health resources are as scarce as they are elsewhere. The expenditures for an extensive investigation have been limited to a single geographic unit, with only one other unit provided as a matched reference. We feel that the North Karelia Project must be viewed as a promising case study rather than a critical test of the effects of health promotion. That test will depend upon further studies. Only by using the different resources available for intervention and measurement in different countries can enough experience be gained to draw final conclusions on the value of health promotion in modern public health work.

### Implications

It is difficult to estimate the potential impact of similar activities in the United States. Stunkard and his colleagues in Pennsylvania are attempting an approximate replication of the North Karelia Project in a rural setting and several other research teams have begun parallel investigations of community health promotion for cardiovascular disease prevention.\* The Stanford-Three-Community-Study<sup>37</sup> demonstrated significant risk reductions in a cohort study in rural California. However there are critical differences between the Finnish and North American cultures that probably make health promotion easier to implement in Finland. United States citizens do not uniformly perceive governmental agencies as credible sources of information, whereas Finns are generally more willing to accept public recommendations and to cooperate with community health workers. Thus, public health interests in Finland find it easier to regulate promotion and marketing of products such as tobacco cigarettes. The governmental regulation of medicine in Finland undoubtedly increases the extent to which preventive services can be shaped to serve the interests of public health. Cultural acceptance of the notion that health is a public responsibility in Finland facilitates perception of the wisdom of shifting investments toward the prevention of disease. Thus the North Karelia Project serves not only to

demonstrate objectives of health promotion but also to illustrate a cultural setting favorable for the development of innovations in public health and preventive medicine.

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## APPENDIX

### *Selected English-Language Publications on the North Karelia Project*

1973

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1974

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*Forthcoming*

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